PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 122013-009 Project Number: 2013-08-040
Installation Number: 186-0001

Parent Company: Mississippi Lime Company

Parent Company Address: 3870 South Lindbergh Boulevard, Suite 200, St. Louis, MO 63127

Installation Name: Mississippi Lime Company

Installation Address: 16147 U.S. Highway 61, Ste. Genevieve, MO 63670

Location Information: Ste. Genevieve County, S29, T38N, R9E

Application for Authority to Construct was made for: The modification of existing kilns PRK4, PRK5 and PRK6 by way of replacing an existing baghouse with a new pulse jet baghouse, modifying the existing preheater and lime cooler and modifying some ancillary supporting facilities. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, Construction Permits Required.

☐ Standard Conditions (on reverse) are applicable to this permit.
☒ Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES
STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department’s Air Pollution Control Program of the anticipated date of startup of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual startup of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources’ personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.
SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. “Conditions required by permitting authority.”

Mississippi Lime Company
Ste. Genevieve County, S29, T38N, R9E

1. Haul Road Dust Suppression
   A. Mississippi Lime Company shall apply water or surfactant spray on Unpaved Fuel Haul Road (EP-614) whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.

   B. Watering may be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.

2. Control Device Requirement-Baghouses
   A. Mississippi Lime Company shall control particulate emissions from the emission units in Appendix B which are stated as having baghouses by enclosing and venting each particulate emission source listed in Appendix B to a baghouse. The enclosures of the emissions units shall be constructed and maintained such that no visible emissions are allowed to occur from these sources except through the gases exiting from the baghouse.

   B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.

   C. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

D. On the days when the equipment listed in Appendix B is running, Mississippi Lime Company shall conduct a daily examination on the baghouses listed in Appendix B. This shall be completed during the daily workplace examinations. During the examination, the person completing the workplace exam shall visually inspect and record that all emission control devices are working as per manufacturer’s guidelines.

E. Mississippi Lime Company shall monitor and record the operating pressure drop across the baghouses listed in Appendix B at least once per week. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

F. Mississippi Lime Company shall submit manufacturers’ performance specifications for the baghouses listed in Appendix B within 30 days of equipment start-up.

G. If at any time the baghouses listed in Appendix B do not operate within the manufactures performance specifications Mississippi Lime Company shall perform an EPA Method 22 visible emission test. If any visible emissions are present during the EPA Method 22 test Mississippi Lime Company shall implement an immediate corrective action to eliminate any excess emissions from the affected stack and report the incident on the next Mississippi Lime Company Title V Semi-Annual Report to the Air Pollution Control Program’s Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102.

H. Mississippi Lime Company shall maintain an operating and maintenance log for the baghouses which shall include the following:
   1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
   2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

3. Control Measure – Capture Efficiency (100%)
   A. Emission units listed in Appendix B as having indirect baghouse control shall be totally enclosed and maintained under negative pressure and vented to its respective baghouse.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

B. If any openings or holes should appear on emission units listed in Appendix B as having indirect baghouse control due to wear or maintenance activities these openings or holes shall maintain negative pressure.

C. Mississippi Lime Company shall demonstrate negative pressure at all emission units listed in Appendix B as having indirect baghouse control by using visual indicators such as streamers, talc puff test, negative pressure gauges, flags, etc. at openings that are not closed during normal operations within 30 days of startup of first modified kiln. All openings, when operating, must indicate the presence of negative pressure for compliance. At any time, after the initial demonstration, an emission unit that is listed in Appendix B as having indirect baghouse control is inspected and it appears that negative pressure is not being attained Mississippi Lime Company shall perform a second visual indicator test to ensure negative pressure is occurring.

D. Mississippi Lime Company shall maintain an operating and maintenance log for the enclosures which shall include the following:
   1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions.
   2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
   3) A record of regular inspection schedule, the date and results of all inspections, including any actions or maintenance activities that result from the inspections. Either paper copy or electronic formats are acceptable.

4. Moisture Content Testing Requirement
   A. Mississippi Lime Company shall verify that the moisture content of the coal and coke used as fuel in PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) and PRK 6 (EP-071) is greater than or equal to 8.0 percent by weight.

   B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials (ASTM) D-2216, C-566 or another method approved by the Director.

   C. The initial test shall be conducted no later than 45 days after the start of operation. A second test shall be performed the calendar year following the initial test during the months of July or August.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

D. The written analytical report shall include the raw data and moisture content of each sample, the test date and the original signature of the individual performing the test. The report shall be filed on-site or at the Mississippi Lime Company main office within 30 days of completion of the required test.

E. If the moisture content of either of the two tests is less than the moisture content in Special Condition 4.A, another test may be performed within 15 days of the noncompliant test. If the second test is less than the moisture content in Special Condition 4.A Mississippi Lime Company shall evaluate what effects the exceedance would have had on the permit applicability of this project. Mississippi Lime Company shall submit the results of any such evaluation, in an amendment application, within 30 days of submitting the moisture content test results report required in Special Condition 4.D. of this permit.

F. In lieu of testing, Mississippi Lime Company may obtain test results that demonstrate compliance with the moisture content in Special Condition 4.A from the supplier of the coal and coke.

5. Haul Roads – Silt Loading
A. Silt loading shall not exceed [ ] grams per meter squared (g/m²) on the following paved haul roads:
   1) Lime Hauling Paved Haul Road (EP-614)
   2) Lime Kiln Dust (LKD) Hauling Paved Haul Road (EP-614)
   3) Fuel Receiving Paved Haul (EP-614)

B. Compliance with the silt loading limitation in Special Condition 5.A. shall be demonstrated by conducting (as defined in Appendix C.1 and C.2 of AP-42 Compilation of Air Pollution Emission Factors, Fifth Edition) a silt loading performance test once every 12 months while the plant is operational. The silt loading test shall be representative (as defined in Appendix C of AP-42) and conducted in accordance with ASTM-C-136 method. Testing cannot be conducted immediately after cleaning. If there is a regular cleaning schedule, testing shall be conducted at the midpoint of the cleaning cycle (i.e. if cleaning is scheduled every eight hours, then testing must be done at the midpoint of four hours).
SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

C. The silt loading test shall be performed at the maximum production rate of PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) or PRK 6 (EP-071) and within 180 days of startup of first modified kiln.

D. Two copies of a written report of the silt loading test results must be submitted to the Director within 90 days of completion of the testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required Environmental Protection Agency (EPA) Method for at least one sample run for each air pollutant tested.

E. Mississippi Lime Company may make a request to the Air Pollution Control Program Director to remove the silt loading testing requirement if the following criteria are met.
   1) The results of the silt loading testing shows compliance with the silt loading requirement found Special Condition 5.A. for three consecutive annual tests.
   2) Mississippi Lime Company maintains the same haul road cleaning schedule established during the three consecutive annual compliant tests.
   3) If at any time Mississippi Lime Company changes the haul road cleaning schedule established they shall perform annual silt loading testing until three consecutive annual tests show compliance with Special Condition 5.A.

F. If the results of the silt loading testing show that the silt loading exceeds the silt loading used in the emissions analysis herein (XXX g/m²), then Mississippi Lime Company shall evaluate what effects the exceedance would have had on the permit applicability of this project. Mississippi Lime Company shall submit the results of any such evaluation, in an amendment application, within 30 days of submitting the silt loading test results report required in Special Condition 5.D. of this permit.

6. As Built Requirement
Mississippi Lime Company shall clarify in their operating permit application, required within 1 year of equipment startup, and their first EIQ submittal after the completion of the first modified kiln, which method of coal/coke fuel firing, Direct or Indirect, was chosen for the modified PRK kilns (PRK 4, 5, and 6).
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

7. Record Keeping and Reporting Requirements
   A. Mississippi Lime Company shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

   B. Mississippi Lime Company shall report to the Air Pollution Control Program’s Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

8. Performance Testing – PRK Kilns
   A. Mississippi Lime Company shall conduct performance testing on at least one the three kilns: PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) or PRK 6 (EP-071), in order to verify that the emission factors in Table 1 for PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, NO<sub>x</sub>, CO and CO<sub>2</sub> are not exceeded. The following conditions shall be measured, recorded and calculated:

   1) Kiln emission unit.
   2) Coal/Coke fuel input into the kiln in pounds per hour
   3) Time from kiln startup to lime manufacturing process startup, and time from lime manufacturing process shutdown to kiln shutdown.
   4) Kiln baghouse pressure drop in inches of water column.
   5) Kiln baghouse exhaust flowrate range, with upper and lower limits, in DSCFM using EPA Method 2 or other Air Pollution Control Program preapproved method.
   6) The following outlet emission rates (lbs/hr) and emission factors (lbs/ton of stone processed)
      a. Filterable PM, filterable and condensable PM<sub>10</sub>, filterable and condensable PM<sub>2.5</sub> emission rates and emission factors. Filterable particulate matter shall be tested using EPA Method 201A. Condensable particulate matter shall be tested using EPA Method 202.
      b. SO<sub>x</sub>. SO<sub>x</sub> emission rate and emission factor shall be tested using EPA Method 6.
      c. NO<sub>x</sub>. NO<sub>x</sub> emission rate and emission factor shall be tested using EPA Method 7.
      d. CO. CO emission rate and emission factor shall be tested using EPA Method 10B.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

e. CO₂. CO₂ emission rate and emission factor shall be tested using EPA Method 6A.
f. Other Air Pollution Control Program preapproved methods may be substituted for any of the above EPA test methods.

7) Total stone usage rates (tph)

Table 1: Emission Factors from the PRK Kilns

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Control Device</th>
<th>MHDR Stone Feed Rate per Kiln (tph)</th>
<th>Controlled Emission Factors (lbs/ton of stone processed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>Pulse Jet Baghouse</td>
<td></td>
<td>PM (Filterable Only)</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>Pulse Jet Baghouse</td>
<td></td>
<td>PM₁₀ (Filterable and Condensible)</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>Pulse Jet Baghouse</td>
<td></td>
<td>PM₂.₅ (Filterable and Condensible)</td>
</tr>
<tr>
<td>SOₓ</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOₓ</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO₂</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Testing shall be conducted according to the following schedule,
1) The permittee shall perform the initial tests within 60 days after achieving the maximum production rate, but not later than 180 days after initial start-up of PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) or PRK 6 (EP-071) for commercial operation.
2) A recurring set of testing shall be performed once every five years after the initial tests to ensure the emission factors are still within the stated maximum listed in Table 1.

C. The performance tests shall be conducted at the MHDR listed in Table 1 or within ten percent of the MHDR. If the tests are conducted below 90 percent of the MHDR, then the tested production rate is the new MHDR. If the tested production rate is below 90 percent, Mississippi Lime Company shall be allowed to operate at ten percent above the tested production rate and not have to retest. These tests shall be conducted in accordance with the Performance Test Procedures outlined in Special Condition 8.A.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

D. If at any time the tested production rates established during the most recent performance test are exceeded by ten percent, Mississippi Lime Company must retest the exceeding emission point to confirm the emission factors listed in Table 1 are not exceeded.

E. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing.

F. Two copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one sample run.

G. The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations.

H. If the results of the performance testing show that the tested emission rates are greater than the emission factors (Table 1), then Mississippi Lime shall evaluate what effects these higher emission factors would have had on the permit applicability, modeling applicability, and emission factors for compliance and emission inventory. Mississippi Lime Company shall submit to the Air Pollution Control Program the results of any such evaluation in a completed Application for Authority to Construct within 30 days of submitting the Performance Test Results report required in Special Condition 8.F of this permit.

I. If at any time the test results of the condensable particulate matter causes an exceedance of the emission factors listed in Table 1, Mississippi Lime Company shall evaluate the test results and test method for probable cause of the exceedance. Mississippi Lime Company shall submit a report within 60 days of the exceedance detailing the findings of a probable cause study to be evaluated by Air Pollution Control Program. Mississippi Lime Company shall also include a suggested course of action in the report to address the exceedances.
REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2013-08-040
Installation ID Number: 186-0001
Permit Number:

Mississippi Lime Company  Complete: August 19, 2013
16147 U.S. Highway 61
Ste. Genevieve, MO 63670

Parent Company:
Mississippi Lime Company
3870 South Lindbergh Boulevard, Suite 200
St. Louis, MO 63127

Ste. Genevieve County, S29, T38N, R9E

REVIEW SUMMARY

• Mississippi Lime Company has applied for authority to modify their existing kilns PRK4, PRK5 and PRK6 by way of replacing an existing positive displacement baghouse with a new pulse jet baghouse, modifying the existing preheater and lime cooler to reflect a more modern and efficient design and modifying some ancillary supporting facilities.

• HAP emissions are expected from the kilns being modified for this project. The majority of the HAPs being emitted is Hydrogen Chloride. Other HAPs include heavy metal HAPs and organic HAPs but only in extremely small amounts that are well below their respective SMAL.


• Baghouses are being used to control the PM, PM$_{10}$ and PM$_{2.5}$ emissions from the equipment listed in Appendix B.

• This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Emission increases of all pollutants are at de minimis levels.

• This installation is located in Ste. Genevieve County, an attainment area for all criteria pollutants.
• This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 11. Lime plants. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.

• Ambient air quality modeling was not performed since potential emissions of the application are at de minimis levels.

• Emissions testing for PM, PM$_{10}$, PM$_{2.5}$, SO$_x$, NO$_x$, CO and CO$_2$ is required for the modified PRK Kilns.

• An application to amend your Part 70 Operating Permit is required for this installation within one year of equipment startup.

• Approval of this permit is recommended with special conditions.

**INSTALLATION DESCRIPTION**

Mississippi Lime Company is a lime processing plant that is located near Ste. Genevieve, Missouri in Ste. Genevieve County. The installation is a major source for construction permit purposes and a Part 70 (Title V) source for operating permit purposes. The installation produces lime which is a product of the calcination of limestone. Mississippi Lime Company currently holds Part 70 operating permit number OP2013-035. The following construction permits have been issued to Mississippi Lime Company from the Air Pollution Control Program.

**Table 2: Previously Issued Construction Permits**

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>072013-007</td>
<td>Temporary Mine Crushing Operation</td>
</tr>
<tr>
<td>112012-009A</td>
<td>True Up to Permit 112012-009</td>
</tr>
<tr>
<td>112012-009</td>
<td>New Lime Hydrator</td>
</tr>
<tr>
<td>082011-002</td>
<td>A Section (5) permit issued on July 5, 2011 for hydration process.</td>
</tr>
<tr>
<td>042010-010</td>
<td>A Section (5) permit issued on April 16, 2010 for a transfer loading station to transfer finished lime product to temporary storage.</td>
</tr>
<tr>
<td>042009-001</td>
<td>A Section (5) permit for new limestone crushing, screening, and conveying equipment for the underground mine</td>
</tr>
<tr>
<td>072004-012</td>
<td>Vertical kilns-(netting).</td>
</tr>
<tr>
<td>052003-045</td>
<td>A Section (5) permit issued on May 2, 2003, for a new lime hydrator.</td>
</tr>
<tr>
<td>122002-007</td>
<td>A Section (8) permit for two (2) new Rotary Lime Kilns.</td>
</tr>
<tr>
<td>102002-008</td>
<td>A Section (5) permit issued on October 7, 2002, for a lime handling system.</td>
</tr>
<tr>
<td>082002-004</td>
<td>A Section (5) permit issued on August 9, 2002, for a new railcar transloading system.</td>
</tr>
<tr>
<td>092001-014</td>
<td>A Section (5) permit issued on September 19, 2001, for a new Vertical Kiln plant with supporting equipment.</td>
</tr>
<tr>
<td>112001-005</td>
<td>A Section (5) permit issued on November 6, 2001, for a new bagging operation.</td>
</tr>
<tr>
<td>052001-003</td>
<td>A Section (5) permit issued on May 4, 2001, to add two (2) additional hydrated lime storage silos, two (2) additional truck load out systems and one (1) additional rail load out system.</td>
</tr>
<tr>
<td>Permit Number</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>0999-009</td>
<td>A Section (3) Temporary Permit issued on September 14, 1999, to reclaim and remediate waste storage piles. Permit Expiration Date: July 31, 2001.</td>
</tr>
<tr>
<td>0799-015</td>
<td>A Section (5) permit issued on July 20, 1999, to revise Permit No. 0679-002 to account for increased potential emissions.</td>
</tr>
<tr>
<td>1198-020</td>
<td>A Section (5) permit issued on November 24, 1998, for a modification to the rotary kiln load out system.</td>
</tr>
<tr>
<td>0898-019</td>
<td>A Section (5) permit issued on August 17, 1998, for construction of a Maerz natural gas fired vertical lime kiln and ancillary equipment.</td>
</tr>
<tr>
<td>0198-006</td>
<td>A Section (5) permit issued on January 8, 1998, for the addition of a pneumatic conveying system from the Rotary Hydrate Plants No. 2 &amp; No. 3 to Rotary Hydrate Plant No. 1.</td>
</tr>
<tr>
<td>0997-015</td>
<td>A Section (5) permit issued on September 11, 1997, for modifications to the lime handling and blending system at the Peerless Plant.</td>
</tr>
<tr>
<td>0897-035</td>
<td>A Section (5) permit issued on August 26, 1997, to amend Permit No. 0292-010A for a natural gas fired Maerz Vertical Lime Kiln to include an ancillary limestone feed and limestone processing system.</td>
</tr>
<tr>
<td>0897-018</td>
<td>A Section (5) permit issued on December 2, 1997, to replace an existing natural gas fired burner of the precipitated calcium carbonate system (MRPCC-2) with a larger burner.</td>
</tr>
<tr>
<td>0897-017</td>
<td>A Section (5) permit issued on August 20, 1997, for an underground limestone crushing operation.</td>
</tr>
<tr>
<td>0395-008</td>
<td>A Section (5) permit issued on February 10, 1995, to construct a new hydrate bulk bagging system.</td>
</tr>
<tr>
<td>0794-014</td>
<td>A Section (5) permit issued on July 20, 1994, to construct a Fuller pneumatic conveying system to convey precipitated calcium carbonate (PPC) from PPC Plant No. 1 to PPC Plant No. 2.</td>
</tr>
<tr>
<td>0292-010</td>
<td>A Section (5) permit issued on February 1, 1992, for the addition of a new natural gas fired Maerz Vertical Lime kiln.</td>
</tr>
<tr>
<td>1090-006</td>
<td>A Section (5) permit issued on October 11, 1990, for the addition of two (2) storage silos for lime hydrate.</td>
</tr>
<tr>
<td>0889-013</td>
<td>A Section (5) permit issued on August 30, 1989, to add a calcium carbonate slurry operation.</td>
</tr>
<tr>
<td>0588-008A</td>
<td>A Section (5) permit issued on May 31, 1988, for a milling operation.</td>
</tr>
<tr>
<td>1086-005A</td>
<td>A Section (5) permit issued on October 1, 1986, to construct a precipitated calcium carbonate plant (MRPCC-2).</td>
</tr>
<tr>
<td>0284-008A to 010A</td>
<td>A Section (5) permit issued on February 21, 1984, to construct a rotary hydrator (MRH-3).</td>
</tr>
<tr>
<td>0480-006</td>
<td>A Section (8) permit issued on April 1, 1980, to construct two (2) rotary lime kiln systems.</td>
</tr>
<tr>
<td>0679-002</td>
<td>A Section (5) permit issued on June 6, 1979, for various crushing, conveying, storage and loading equipment.</td>
</tr>
</tbody>
</table>

**PROJECT DESCRIPTION**

The Mississippi Lime Company (MLC) has requested confidentiality for emission unit maximum hourly design rates and process information. This is the confidential permit. A public copy is available under project number 2013-08-040.

MLC plans to modify three existing lime kilns designated as PRK 4, PRK 5 and PRK 6. The modifications include improving the emission controls of the three kilns by replacing the existing positive displacement baghouse with a pulse jet baghouse as well as updating the existing preheaters and lime coolers to reflect a more modern design.
With the new lime cooler design it will allow the elimination of the existing baghouse that is currently controlling the lime cooler. The modified lime cooler uses considerably less air flow which allows the air exiting the cooler to be directed through the kiln as secondary combustion air. Therefore any emissions from the modified lime cooler will be channeled through the kiln and the preheater and then through the new pulse jet baghouse.

The modifications being made to PRK 4, PRK 5 and PRK 6 result in an increase in the maximum hourly design rate of the kilns. The modification to the kilns result in an increase in fuel efficiency and therefore less coal/coke fuel is being burned in the kilns. The modification also results in necessary replacement and modification to some of the ancillary facilities as well as new equipment to provide stone and fuel to the kilns and convey the finished product for storage and transport. A majority of the new and replacement ancillary equipment are controlled by baghouses. A list of the new and replacement controlled equipment can be found in Appendix B.

The first step of this project was to determine if the modification MLC is proposing constitutes reconstruction of the three kilns being modified. This project is clearly a new source review modification as it results in a physical change in, or change in the method of operation of, an existing major stationary source. A modification can be classified as reconstruction if the definition of reconstruction is met. 40 CFR 60.15 defines reconstruction as “…the replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility. MLC contacted experienced manufacturers and contractors who are actively involved in lime kiln construction activities to obtain current pricing information for the fixed capital cost to complete the planned modifications to the three existing kilns and the fixed capital cost to construct a comparable entirely new facility. MLC’s findings showed that the fixed capital cost of the modification proposed was approximately 29 percent of the fixed capital cost of constructing new three new kilns. Therefore MLC’s project does not meet the definition of reconstruction and will be treated as a modification under new source review.

As a modification the analysis for this project was done in accordance with 40 CFR 52.21, which is the federal requirements for the PSD program. The first step in determining if this project is subject to the PSD program is to determine if there is a significant emission increase. Mississippi Lime stated in their application that the proposed project will not have a significant emission increase and demonstrated this using the hybrid test for the project involving existing, replacement, and new emission units. In order to be considered a replacement emission unit, the emission unit must meet the definition found in 40 CFR 52.21(b)(33) for “replacement unit.” All emission units that are reference within this permit as a “replacement emission unit” meet the definition referenced above.

The first step of hybrid test is to determine the baseline actual emission (BAE) for the existing equipment affected by this project. MLC calculated the BAE in accordance with 40 CFR 52.21(b)(48) by calculating their average annual emissions over a 24 consecutive month period within the past ten years for each existing piece of equipment
that is affected by this project. The baseline period was determined to be August 22, 2003, to August 21, 2005. All emissions from this project were calculated based on the daily stone feed rate of PRK 4, PRK 5 and PRK 6. Therefore the baseline period determination was based on the actual daily stone feed of PRK 4, PRK 5 and PRK 6 using a 24 month rolling average. Mississippi Lime did not consider BAE for the replacement equipment being installed as a result of this project because it did affect the permit type determination.

The second step of the hybrid test is to determine the projected actual emissions (PAE) for the existing equipment affected by this project and any replacement equipment being installed and to determine the full potential emissions of any new equipment being installed. MLC calculated the PAE for the existing affected equipment and replacement equipment in accordance with 40 CFR 52.21(b)(41) by taking the maximum annual stone feed rate, in tons per year, at which each existing and replacement emission unit is projected to emit a regulated NSR pollutant in any one of the five years following the date the unit resumes regular operation after the project.

Demand growth (DG) was also considered for this project. DG is calculated by subtracting the BAE from the emissions the unit was capable of accommodating (COA) without the proposed project. The emissions that each unit was COA was determined by using past production numbers observed within the baseline period by Mississippi Lime. A maximum seven day rolling average scaled up to an annual usage rate of stone feed and an expected on stream time of 92 percent for each PRK kiln was used in the COA determination. Using the stone feed throughput of the existing kilns, throughputs of other affected emission units were determined and emissions that each unit was COA were calculated. Based on the projected actual of this project and demonstration through economic analysis MLC has shown that the demand growth of its product is expected to reach what each unit was COA in the past therefore allowing the demand growth calculation to be used.

This leads to the final step which is to determine the emissions increase (EI) of the project. The EI for the project is calculated by subtracting the DG and BAE from the PAE of the proposed project.

The calculation method for determining the EI of the project, while considering DG, is as follows: EI = PAE – DG – BAE. As stated previously DG is calculated using the following method: DG = COA – BAE. Using basic algebra the calculation method for determining the EI for the project can be stated as: EI = PAE – COA.

The following assumptions were made while calculating the BAE, COA and PAE.

- For all existing and replacement units a 92 percent on stream time was factor into the throughput of the emission points. All new emission units assumed 100 percent on stream time.
- 100 percent capture on all emission points controlled by a baghouse. Mississippi Lime is required is demonstrate 100 percent capture via Special Condition 3.
EMISSIONS/CONTROLS EVALUATION

All emission units affected by this project are listed in Appendix C. Appendix C describes whether emission unit is new, existing, replacement, or removed and also states how the EI was calculated for that emission unit.

Kilns and Lime Coolers
The emission factors used in the BAE and COA analysis of the existing PRK kilns for PM, PM$_{10}$, PM$_{2.5}$, SO$_x$, NO$_x$ and CO were obtained from stack tests performed by Mississippi Lime on PRK Kilns. Test results for condensable particulate matter from the PRK kilns were not available so the emission factors used for condensable particulate matter was taken from a stack test on a similar kiln at a sister facility. Greenhouse gas (GHG) emissions were calculated using the EPA emission model for GHG reporting. The VOC emission factor was obtained from the EPA document AP-42.

The HAP emission factors were obtained from the Lime Manufacturing section of AP-42 therefore the emission factors for the were deemed most representative. All the particulate matter emission factors used for the BAE and COA analysis are considered controlled emission factors as the PRK kilns are controlled by a baghouse. BAE and COA emissions were not calculated for the existing lime coolers only the PAE of the modified lime coolers were considered for this project.

The emission factors used in the PAE analysis of the modified PRK kilns and lime coolers for PM$_{10}$, PM$_{2.5}$, SO$_x$, NO$_x$ and CO were obtained from stack tests performed by Mississippi Lime on their RK kilns and vendor guarantees. The PM emission factor was obtained from PM emission standard for new lime kilns found in 40 CFR 63, Subpart AAAAA, National Emission Standard for Hazardous Air Pollutants for Lime Manufacturing Plants. The new PRK kiln design is expected to perform similar to the RK kiln design therefore it was assumed the emission factors would be similar. The new PRK kiln design also routes emissions from the modified lime coolers to the new pulse jet baghouse and the emission factors used include the emissions from the lime coolers. All the particulate matter emission factors used for the PAE analysis are considered controlled emission factors.

Hydrogen Sulfide (H$_2$S) is listed as a regulated pollutant within 10 CSR10-6.060. H$_2$S is expected from the modified PRK Kilns however no published emission factor was found for Lime Manufacturing. Based on the fact that the same type of coal/coke will be used for the modified PRK kilns and the usage of coal/coke fuel is being reduced due to modification it was assumed that any H$_2$S emissions from the modified PRK kiln to be at the de minimis level.

Stone Transfer Equipment
The emission factors used in the analysis of the existing stone transfer emission units from the underground mine to the PRK stone shed were obtained from AP-42.
In Mississippi Lime’s construction permit 042009-001 a control efficiency of [percent] was given to any emission unit 800 feet or greater from the mines entrance. Any emission unit less than 800 feet from the mine entrance was given control efficiency of [percent]. These control efficiencies assumptions were also used for this project. All storage piles within the mine are loaded using a conveyor and unloaded using a stone feeder therefore it was assumed that there was no vehicular activity emissions around the storage pile. These emission factors were used for the PAE, COA emissions and BAE.

The emission factors used in the analysis of the existing stone transfer emission units from the PRK stone shed to the PRK kilns were obtained from a stack test performed by Mississippi Lime on feeder baghouse (EP-055). The uncontrolled conveyor transfer point emission factor found in AP-42, [equation] was used in the analysis of the replacement stone transfer emission units from the PRK stone shed to the PRK kilns. A [percent] control efficiency was given to the replacement equipment as these emission units are controlled by a baghouse. These emission factors and control efficiencies were used for the PAE, COA emissions and BAE.

Lime and Lime Kiln Dust Handling

The emission factors used in the analysis of the lime feeders after the kiln processing and the lime kiln dust (LKD) handling were calculated using the predictive equations found in AP-42, [equation] using a mean wind speed of [miles per hour], as the emission points are in enclosed areas and required to demonstrate negative pressure via Special Condition 3., and moisture content of [percent]. The emission factor used for enclosed truck loadout of LKD was obtained from AP-42, [equation]. All emission points at this point in the process are controlled by a baghouse and a [percent] control was given to these emission points. These emission factors and control efficiencies were used for the PAE, COA emissions and BAE.

The emission factors used in the analysis of the emission units associated with finished lime handling were calculated using the predictive equations found in AP-42, [equation] using a mean wind speed of [miles per hour], as the emission points are in enclosed areas and required to demonstrate negative via Special Condition 3., and moisture content of [percent]. Mississippi Lime performed stack testing on a baghouse of an existing screen (EP-675). Therefore the emission factor used for all screens was calculated based on the results of that stack test. The emission factor using for lime silo loading and silo loading was obtained from AP-42 [equation] unloading into an elevated silo. This was determined to be the most representative as the silo and loadout points are controlled by a baghouse.

Mississippi Lime is installing new lime handling equipment and a screen that will be part of the RK Kiln production process. This new equipment is not related to PRK Kiln modification however it is included in this project. All emission factors used for the new RK Kiln handling equipment and screen are the same as the emissions factors used for the PRK lime handling equipment and screens. These emission factors were used for the PAE, COA emissions and BAE.
Fuel Handling
Within Mississippi Lime’s application they identified and quantified the emissions for two options for kiln fuel firing; direct and indirect firing. Direct firing feeds the fuel directly from the fuel mill to the kiln burner in real time whereas indirect firing uses the mill to prepare the fuel and store it in silos for delivery to the kiln burner at a later time. There are pros and cons to each system and MLC plans to decide on which option to go with after further engineering evaluation prior to construction. For the PAE of this project the worst case, which was the direct firing, was chosen to represent the PAE of the project. The emission factors used in the analysis of the coal/coke handling were calculated using the predictive equations found in AP-42 using a mean wind speed of miles per hour, as emission point are in enclosed areas, and moisture content of percent. Emissions from wind erosion and vehicular activity areas of the coal/coke storage piles were calculated using an equation found in the Air Pollution Control Program’s Emissions Inventory Questionnaire Form 2.8 “Storage Pile Worksheet.” These emission factors were used for the PAE, COA emissions and BAE.

Haul Roads
Emissions from haul roads were calculated using the predictive equation from AP-42 for unpaved roads and the predictive equation from AP-42. A control efficiency for PM and PM and a control efficiency for PM were applied to the unpaved haul road emission calculations for the use of undocumented water.

The following table provides an emissions summary for this project. Existing potential emissions were taken from previously issued construction permit amendment 112012-009A. Existing actual emissions were taken from the installation’s 2012 EIQ. Projected Actual Emission of the Application represent the maximum annual emission rate at which each existing or replacement emission unit is projected to emit a regulated NSR pollutant in any one of the five years following the date the unit resumes regular operation after the project as well as the potential annual emission rate of any new emission unit. Actual Emissions that were Capable of Accommodating Prior to Application represent the actual annual emission rate at which each existing emission unit was capable of emitting without the proposed project. Emission Increase of the Application represents the Actual Emissions that were Capable of Accommodating Prior to Application subtracted from the Projected Actual Emission of the Application.

Table 3: Emissions Summary (tons per year)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Regulatory De Minimis Levels</th>
<th>Existing Potential Emissions</th>
<th>Existing Actual Emissions (2012 EIQ)</th>
<th>PAE of the Application</th>
<th>Actual Emissions that were COA Prior to Application</th>
<th>Emission Increase of the Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>25.0</td>
<td>&gt;250.0</td>
<td>N/D</td>
<td>72.97</td>
<td>51.61</td>
<td>21.36</td>
</tr>
<tr>
<td>PM&lt;sub&gt;10&lt;/sub&gt;</td>
<td>15.0</td>
<td>&gt;250.0</td>
<td>1,285.00</td>
<td>67.48</td>
<td>77.04</td>
<td>-9.56</td>
</tr>
<tr>
<td>PM&lt;sub&gt;2.5&lt;/sub&gt;</td>
<td>10.0</td>
<td>&gt;250.0</td>
<td>589.03</td>
<td>38.47</td>
<td>47.42</td>
<td>-8.95</td>
</tr>
<tr>
<td>SOx</td>
<td>40.0</td>
<td>&gt;250.0</td>
<td>3,298.55</td>
<td>120.89</td>
<td>84.46</td>
<td>36.43</td>
</tr>
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<td></td>
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</tr>
<tr>
<td>NOx</td>
<td>40.0</td>
<td>&gt;250.0</td>
<td>3,747.57</td>
<td>574.22</td>
<td>535.68</td>
<td>38.54</td>
</tr>
<tr>
<td>VOC</td>
<td>40.0</td>
<td>&gt;250.0</td>
<td>52.32</td>
<td>6.04</td>
<td>4.98</td>
<td>1.06</td>
</tr>
<tr>
<td>CO</td>
<td>100.0</td>
<td>&gt;250.0</td>
<td>13,113.60</td>
<td>143.55</td>
<td>49.08</td>
<td>94.47</td>
</tr>
<tr>
<td>GHG (CO₂e)</td>
<td>75,000 / 100,000</td>
<td>&gt;100,000</td>
<td>N/D</td>
<td>513,774</td>
<td>454,702</td>
<td>59,072</td>
</tr>
<tr>
<td>GHG (mass)</td>
<td>0.0 / 100.0 / 250.0</td>
<td>&gt;250.0</td>
<td>N/D</td>
<td>511,658</td>
<td>452,958</td>
<td>58,700</td>
</tr>
<tr>
<td>Total HAPs</td>
<td>25.0</td>
<td>&gt;25.0</td>
<td>28.77</td>
<td>0.138</td>
<td>0.114</td>
<td>0.024</td>
</tr>
<tr>
<td>HCL</td>
<td>10.0</td>
<td>N/D</td>
<td>N/D</td>
<td>0.121</td>
<td>0.100</td>
<td>0.021</td>
</tr>
</tbody>
</table>

N/A = Not Applicable; N/D = Not Determined; PAE = Project Actual Emissions; COA = Capable of Accommodating

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of all pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Mississippi Lime Company shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110
- Operating Permits, 10 CSR 10-6.065
- Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin, 10 CSR 10-6.170
- Restriction of Emission of Visible Air Contaminants, 10 CSR 10-6.220
- Restriction of Emission of Odors, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400 applies to the coal/coke handling emission units. These emission units are in compliance with the emission rate requirement of this rule.
- New Source Performance Regulations, 10 CSR 10-6.070
  - Standards of Performance for Lime Manufacturing Plants, 40 CFR Part 60, Subpart HH
- MACT Regulations, 10 CSR 10-6.075

- Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.260. The SO₂ concentration of the modified kilns in 54.02 ppm by volume (ppmv) which is less than the required concentration of 2000 ppmv of SO₂. The combined SO₃ and sulfuric acid concentration of the modified kilns in 5.29 mg/m³ which is less than the required concentration of 70 mg/m³ of combined SO₃ and sulfuric acid

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, Construction Permits Required, I recommend this permit be granted with special conditions.

Gerad Fox
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 19, 2013, received August 19, 2013, designating Mississippi Lime Company as the owner and operator of the installation.

### APPENDIX A

#### Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>percent</td>
</tr>
<tr>
<td>ºF</td>
<td>degrees Fahrenheit</td>
</tr>
<tr>
<td>acfm</td>
<td>actual cubic feet per minute</td>
</tr>
<tr>
<td>BACT</td>
<td>Best Available Control Technology</td>
</tr>
<tr>
<td>BMPs</td>
<td>Best Management Practices</td>
</tr>
<tr>
<td>Btu</td>
<td>British thermal unit</td>
</tr>
<tr>
<td>CAM</td>
<td>Compliance Assurance Monitoring</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service</td>
</tr>
<tr>
<td>CEMS</td>
<td>Continuous Emission Monitor System</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CO₂</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>CO₂e</td>
<td>carbon dioxide equivalent</td>
</tr>
<tr>
<td>COMS</td>
<td>Continuous Opacity Monitoring System</td>
</tr>
<tr>
<td>CSR</td>
<td>Code of State Regulations</td>
</tr>
<tr>
<td>dscf</td>
<td>dry standard cubic feet</td>
</tr>
<tr>
<td>EIQ</td>
<td>Emission Inventory Questionnaire</td>
</tr>
<tr>
<td>EP</td>
<td>Emission Point</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>EU</td>
<td>Emission Unit</td>
</tr>
<tr>
<td>fps</td>
<td>feet per second</td>
</tr>
<tr>
<td>ft</td>
<td>feet</td>
</tr>
<tr>
<td>GACT</td>
<td>Generally Available Control Technology</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
</tr>
<tr>
<td>gpm</td>
<td>gallons per minute</td>
</tr>
<tr>
<td>gr</td>
<td>grains</td>
</tr>
<tr>
<td>GWP</td>
<td>Global Warming Potential</td>
</tr>
<tr>
<td>HAP</td>
<td>Hazardous Air Pollutant</td>
</tr>
<tr>
<td>hr</td>
<td>hour</td>
</tr>
<tr>
<td>hp</td>
<td>horsepower</td>
</tr>
<tr>
<td>lb</td>
<td>pound</td>
</tr>
<tr>
<td>lbs/hr</td>
<td>pounds per hour</td>
</tr>
<tr>
<td>MACT</td>
<td>Maximum Achievable Control Technology</td>
</tr>
<tr>
<td>µg/m³</td>
<td>micrograms per cubic meter</td>
</tr>
<tr>
<td>m/s</td>
<td>meters per second</td>
</tr>
<tr>
<td>Mgal</td>
<td>1,000 gallons</td>
</tr>
<tr>
<td>MW</td>
<td>megawatt</td>
</tr>
<tr>
<td>MHDR</td>
<td>maximum hourly design rate</td>
</tr>
<tr>
<td>MMBtu</td>
<td>Million British thermal units</td>
</tr>
<tr>
<td>MMCF</td>
<td>million cubic feet</td>
</tr>
<tr>
<td>MSDS</td>
<td>Material Safety Data Sheet</td>
</tr>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
</tr>
<tr>
<td>NESHAPs</td>
<td>National Emissions Standards for Hazardous Air Pollutants</td>
</tr>
<tr>
<td>NOₓ</td>
<td>nitrogen oxides</td>
</tr>
<tr>
<td>NSPS</td>
<td>New Source Performance Standards</td>
</tr>
<tr>
<td>NSR</td>
<td>New Source Review</td>
</tr>
<tr>
<td>PM</td>
<td>particulate matter</td>
</tr>
<tr>
<td>PM₂·₅₀</td>
<td>particulate matter less than 2.5 microns in aerodynamic diameter</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>particulate matter less than 10 microns in aerodynamic diameter</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>PSD</td>
<td>Prevention of Significant Deterioration</td>
</tr>
<tr>
<td>PTE</td>
<td>potential to emit</td>
</tr>
<tr>
<td>RACT</td>
<td>Reasonable Available Control Technology</td>
</tr>
<tr>
<td>RAL</td>
<td>Risk Assessment Level</td>
</tr>
<tr>
<td>SCC</td>
<td>Source Classification Code</td>
</tr>
<tr>
<td>scfm</td>
<td>standard cubic feet per minute</td>
</tr>
<tr>
<td>SIC</td>
<td>Standard Industrial Classification</td>
</tr>
<tr>
<td>SIP</td>
<td>State Implementation Plan</td>
</tr>
<tr>
<td>SMAL</td>
<td>Screening Model Action Levels</td>
</tr>
<tr>
<td>SOₓ</td>
<td>sulfur oxides</td>
</tr>
<tr>
<td>SO₂</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>tph</td>
<td>tons per hour</td>
</tr>
<tr>
<td>tpy</td>
<td>tons per year</td>
</tr>
<tr>
<td>VMT</td>
<td>vehicle miles traveled</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Compound</td>
</tr>
</tbody>
</table>
### Appendix B: Controlled Emission Unit Summary

**Mississippi Lime Company**  
Ste. Genevieve County, S29, T38N, R9E  
Project Number: 2013-08-040  
Installation Number: 186-0001

<table>
<thead>
<tr>
<th>Emission Point</th>
<th>Description</th>
<th>Control Device No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP-069</td>
<td>PRK 4 Kiln and Associated Lime Cooler</td>
<td>CD-069</td>
<td>Pulse Jet Baghouse</td>
</tr>
<tr>
<td>EP-070</td>
<td>PRK 5 Kiln and Associated Lime Cooler</td>
<td>CD-070</td>
<td>Pulse Jet Baghouse</td>
</tr>
<tr>
<td>EP-071</td>
<td>PRK 6 Kiln and Associated Lime Cooler</td>
<td>CD-071</td>
<td>Pulse Jet Baghouse</td>
</tr>
<tr>
<td>EP-955</td>
<td>Conveyor 11A (Feed for PRK 4-6)</td>
<td>CD-955</td>
<td>Baghouse (Direct)</td>
</tr>
<tr>
<td>EP-956</td>
<td>Conveyor (Feed for PRK 4)</td>
<td>CD-956</td>
<td>Baghouse (Direct)</td>
</tr>
<tr>
<td>EP-957</td>
<td>Conveyor (Feed for PRK 5)</td>
<td>CD-957</td>
<td>Baghouse (Direct)</td>
</tr>
<tr>
<td>EP-958</td>
<td>Conveyor (Feed for PRK 6)</td>
<td>CD-958</td>
<td>Baghouse (Direct)</td>
</tr>
<tr>
<td>EP-959</td>
<td>Lime feeder (PRK 4)</td>
<td>CD-963</td>
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<td>EP-960</td>
<td>Lime feeder (PRK 5)</td>
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<td>Baghouse (Direct)</td>
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<td>EP-961</td>
<td>Lime feeder (PRK 6)</td>
<td>CD-963</td>
<td>Baghouse (Direct)</td>
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<tr>
<td>EP-693</td>
<td>LKD Truck Loadout</td>
<td>N/A</td>
<td>DCL Spout</td>
</tr>
<tr>
<td>EP-963</td>
<td>Pan Conveyor (PRK 4 lime)</td>
<td>CD-963</td>
<td>Baghouse (Direct)</td>
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<tr>
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## Appendix C: Emission Units Affected by Project

### Emission Units from Underground Mine Face to PRK Stone Shed

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Appendix C: Emission Units Affected by Project

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<td>EP-901</td>
<td>Pile - Peerless Stone Shed</td>
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<td>Conveyor 8</td>
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<td>Conveyor 10</td>
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<td>EP-061</td>
<td>Screen</td>
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<td>EP-062</td>
<td>Conveyor 11 (Current stone feed to PRKs and RKs)</td>
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<td>PRK 4 Kiln (1200 tsf/d)</td>
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<td>EP-070</td>
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<td>EP-962</td>
<td>LKD Surge Bin</td>
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<tr>
<td>EP-684</td>
<td>LKD Silo (RK)</td>
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<tr>
<td>EP-693</td>
<td>LKD Truck Loadout</td>
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<td>EP-081</td>
<td>LKD Storage Silos</td>
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<td>LKD Truck Loadout</td>
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<td>LKD Truck Hauling</td>
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Emission Units for Lime Handling from Peerless Plant to Loadout

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<th>New (NW), Existing (EX), Replacement (RP) or Removed (RM)</th>
<th>MHDR (tons of stone feed per hour)</th>
<th>EI Calculation Method</th>
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<tr>
<td>EP-963</td>
<td>Pan Conveyor (PRK 4 lime)</td>
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<td>North Pan Conveyor</td>
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## Appendix C: Emission Units Affected by Project

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<th>Emission Point</th>
<th>Description</th>
<th>New (NW), Existing (EX), Replacement (RP) or Removed (RM)</th>
<th>MHDR (tons of stone feed per hour)</th>
<th>EI Calculation Method</th>
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<tbody>
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<td>EP-658</td>
<td>South Pan Conveyor</td>
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<tr>
<td>EP-083</td>
<td>Elevator 1</td>
<td>EX</td>
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<td>EP-084</td>
<td>Elevator 2</td>
<td>EX</td>
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<td>PAE - COA</td>
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<td>EP-085</td>
<td>Elevator 3</td>
<td>EX</td>
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<td>EP-675</td>
<td>Screen</td>
<td>EX</td>
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<td>PAE - COA</td>
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<td>EP-687</td>
<td>Silos</td>
<td>EX</td>
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<td>EP-688</td>
<td>Screen 2</td>
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<td>PAE - COA</td>
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<td>Loadout</td>
<td>EX</td>
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<td>PAE - COA</td>
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<td>EP-969</td>
<td>Conveyors (3)</td>
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<td>EP-970</td>
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<td>EP-978</td>
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<td>Silo 2 1/2 inch</td>
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<td>Silo 3 - 1 inch</td>
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<td>EP-981</td>
<td>Polishing Screen 2</td>
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<td>Polishing Screen 3</td>
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<td>Loadout - Silo 1</td>
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<td>EP-984</td>
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<td>EP-614</td>
<td>Lime Truck Haul Road</td>
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### New Emission Unit for RK Kiln Lime Handling (Not related to PRK Kiln modification but included in this project)

<table>
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<tr>
<th>Emission Point</th>
<th>Description</th>
<th>New (NW), Existing (EX), Replacement (RP) or Removed (RM)</th>
<th>MHDR (tons of stone feed per hour)</th>
<th>EI Calculation Method</th>
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<tbody>
<tr>
<td>EP-989A</td>
<td>New Lime conveyor from RK1 to BC08</td>
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<tr>
<td>EP-989B</td>
<td>New RK 2' x 1&quot; Silo</td>
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<td>EP-989C</td>
<td>Screen</td>
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<td>EP-989D</td>
<td>Loadout - RK 2 x 1 Silo</td>
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### Direct Firing – Emission Units for Coal Coke Handling form Delivery to Kiln

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<th>Emission Point</th>
<th>Description</th>
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<th>EI Calculation Method</th>
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<tbody>
<tr>
<td>EP-614</td>
<td>Coal/Coke Truck Haul Road (Paved + Unpaved)</td>
<td>EX</td>
<td>N/A</td>
<td>PAE - COA</td>
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<tr>
<td>EP-615</td>
<td>Truck Unloading - Coal</td>
<td>EX</td>
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<tr>
<td>EP-621</td>
<td>Truck Unloading - Coke</td>
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<td>PAE - COA</td>
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<tr>
<td>EP-616</td>
<td>Pile Forming - Coal</td>
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<td>PAE - COA</td>
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<tr>
<td>EP-622</td>
<td>Pile Forming - Coke</td>
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<tr>
<td>EP-617B</td>
<td>Storage Pile - Coal</td>
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<tr>
<td>EP-624</td>
<td>Loading - Coke</td>
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<tr>
<td>EP-625</td>
<td>Hopper</td>
<td>EX</td>
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<tr>
<td>EP-626</td>
<td>Feeder</td>
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<td>EP-631</td>
<td>Conveyor</td>
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<td>EP-636</td>
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<tr>
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<td>PRK Coal/Coke Day Bins</td>
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<td>Coal Silo</td>
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<td>EP-996</td>
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### Appendix C: Emission Units Affected by Project

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<tr>
<th>Emission Point</th>
<th>Description</th>
<th>New (NW), Existing (EX), Replacement (RP) or Removed (RM)</th>
<th>MHDR (tons of stone feed per hour)</th>
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**Indirect Firing – Emission Units for Coal Coke Handling form Delivery to Kiln**

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<th>Emission Point</th>
<th>Description</th>
<th>New (NW), Existing (EX), Replacement (RP) or Removed (RM)</th>
<th>MHDR (tons of stone feed per hour)</th>
<th>EI Calculation Method</th>
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<tbody>
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<td>EP-614</td>
<td>Coal/Coke Truck Haul Road (Paved + Unpaved)</td>
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<td>Truck Unloading - Coal</td>
<td>EX</td>
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<td>PAE - COA</td>
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<tr>
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<td>Truck Unloading - Coke</td>
<td>EX</td>
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<td>PAE - COA</td>
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<td>Pile Forming - Coal</td>
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<td>PAE - COA</td>
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<td>Hopper</td>
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<td>Weigh feeder - Coal</td>
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<td>Weigh Feeder - Coke</td>
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EI = Emissions Increase; PAE = Project Actual Emissions; COA = Capable of Accommodating; PTE = Potential Emissions
Ms. Kimberly Bauman  
Director - Environmental Affairs  
Mississippi Lime Company  
3870 South Lindbergh Boulevard, Suite 200  
St. Louis, MO 63127 

RE: New Source Review Permit - Project Number: 2013-08-040 

Dear Ms. Bauman:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Gerard Fox, at the Department of Natural Resources’ Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:gfk

Enclosures

c: Southeast Regional Office  
PAMS File: 2013-08-040

Permit Number: